426755

ORIGINAL
(Red)

R-585-12-3-10

ADDENDUM TO FINAL FIELD TRIP REPORT FOR MILLER CHEMICAL AND FERTILIZER PREPARED UNDER

TDD NO. F3-8306-17
EPA NO. N/A
CONTRACT NO. 68-01-6699

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

JANUARY 29, 1985

NUS CORPORATION
SUPERFUND DIVISION

[redacted] [redacted] (b) (4) [redacted]

(b) (4) [redacted]

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SECTION 1

1.0 INTRODUCTION

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1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-6699. This specific report was prepared in accordance with Technical Directive Document No. F3-8306-17 for the Miller Chemical and Fertilizer site located in Whiteford, Maryland.

1.2 Scope of Work

NUS FIT III was tasked to complete a high priority site inspection including both priority pollutant and dioxin 2,3,7,8-TCDD sampling.

This report will act as a supplement to an earlier report submitted to EPA. The earlier report addressed the results of the analysis of on-site samples for 2,3,7,8-TCDD dioxin contamination and additional background information can be found there.

1.3 Summary

A pre-site inspection meeting was held on June 20, 1983 with NUS, EPA, Maryland Department of Health and Mental Hygiene and Miller Chemical representatives present to discuss the handling of 2,4 dichlorophenoxybutyric acid (2,4 D) on site. During the course of this meeting, it was learned that a chromium, copper, zinc based fungicide called "6-5-8" and an arsenic based weed killer called "Kill All" were produced on site during the early 1960s. The building in which these products were produced has been demolished with only a concrete slab remaining in its place (see Site Sketch in appendix B).

The arsenic based product ("Kill All") was produced in a closed system; however, the blending tanks used in this operation were rinsed once a year and the wash water reportedly drained to nearby surface waters. In addition, as reported in the original report, TDD No. F3-8306-17, the site contains 2 former wastewater ponds used by an adjacent packing company. The Maryland Department of Health and Mental Hygiene has been aware of this problem and has addressed it in the past. As a result of the information obtained during this meeting, it was determined that sediment samples, to be analyzed for priority pollutants, would be collected during the site inspection of the subject site.

The FIT III visited the subject site to conduct the tasked site inspection on June 22, 1983. During this visit, a total of 5 low concentration sediment samples were collected and sent to EPA contract labs for priority pollutant analysis. The results of these analyses are found in section 3.0 and a Toxicological Evaluation is found in section 4.0.

In summary, sample results have revealed levels of arsenic in the downstream sample 3 to 5 times higher than the upstream sample. However, the elevated levels are within normal ranges of arsenic concentration accepted for non-polluted soils. Other compounds reported at slightly elevated levels have also been determined to be within normal ranges.

SECTION 2

ORIGINAL (Red)

2.0 FIELD TRIP REPORT

2.1 Summary

NUS FIT III conducted a site inspection as tasked in TDD No. F3-8306-17 on June 22, 1983. The team consisted of Thomas Fromm, William Wentworth, Garth Glenn, David Walker, Eugene Dennis, Jeffrey Case, and Bruce Pluta. Environmental conditions on this date were very hot (85° to 90°) and humid.

2.2 Persons Contacted

2.2.1 Prior to Field Trip

Neil Swanson, EPA Region III
Sixth and Walnut Streets
Philadelphia, PA 19106
215-597-3437

2.2.2 At the Site

Neil Swanson
US EPA Region III
Sixth and Walnut Sts.
Philadelphia, PA 19106
215-593437

Peter Schual
US EPA Region III
Sixth and Walnut Sts.
Philadelphia, PA 19106
215-597-4997

Janet Luffy
US EPA Region III
Sixth and Walnut Sts.
Philadelphia, PA 19106
215-593437

Akskay Vidijarthi
Miller Chem. & Fertilizer Corp.
Whiteford, MD
717-632-8921

Howard Harvey
Miller Chemical & Fertilizer Corp.
Whiteford, MD
717-632-8921

Howard Dye
MD Dept. of Health and Mental Hygiene
Baltimore, MD
301-383-6650

Paul Thompson
MD Dept. of Health and Mental Hygiene
Baltimore, MD
301-383-6650

TDD Number E3-8306-17

EPA Number

3 SAMPLE LOG

Site Name M1-03

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
C3879	MC 1249		M-03-10	SOLID	SEDIMENT UPSTREAM	6/22/83	1340			MEAD/VERSAR
C3880	MC 1250		M-03-11		SEDIMENT MIDDLE		1400			
C3881	MC 1251		M-03-12		SED. UP CONFLUENT		1430			
C3882	MC 1252		M-03-13		SED. DOWN CONFLUENT		1445			
C3883	MC 1253		M-03-15		BLANK	6/27/83	1200			

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SECTION 3

ORIGINAL

3.0 LABORATORY DATA

3.1 SAMPLE DATA SUMMARY

TDD Number F3-8306-17

EPA Number

SA DA MM
TARGET COMPOUNDS.

☒ Organic ☐ Inorganic

Site Name Miller Chemical & Fertilizer

Date of Sample June 22, 1983

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: Methylene chloride	Toxaphene	Chlorotrichloroethane	Toluene	Fluoranthene	bis (2-ethylhexyl) phthalate	di-n-octyl phthalate	Chrysene	Pyrene	4,4'-DDT	4,4'-DDE	4,4'-DDD	N-nitrosodiphenylamine	Remarks
C 3879	Sediment upstream	Sol	ug/Kg	7.0 ◇	479												
C 3880	Sediment mid-stream	Sol	ug/Kg	8.0 ◇		<2.5 ◇										<400	
C 3881	Sediment upstream of confluence	Sol	ug/Kg	5.0 ◇		9.0 ◇		12,000	<400 ◇		4000	12,000					
C 3882	Sediment downstream of confluence	Sol	ug/Kg	8.0 ◇		3.0 ◇		<800	12,000	<800 ◇	<800	<800	13.0 ◇	2.87 ◇	11.9 ◇		
C 3883	Blank	Sol	ug/Kg	73		6.2	<2.5										

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

TDD Number F3-8306-17

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name Miller Chemical & Fertilizer

Date of Sample June 22, 1983

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: 4-methylphenol	benzo(a)anthracene	benzo(a)pyrene	benzo(b)fluoranthene	benzo(k)fluoranthene	acenaphthylene	anthracene	benzo(ghi)perylene	fluorene	phenanthrene	indeno(1,2,3-cd)pyrene	acenaphthene	Remarks
C 3879	Sediment upstream	Sol	ug/Kg													
C 3880	Sediment Mid-stream	Sol	ug/Kg													
C 3881	Sediment upstream of confluence	Sol	ug/Kg	1900	4300	1800	3500	2000	1000	920	880	440	4500	960	<400	
C 3882	Sediment downstream of confluence	Sol	ug/Kg													
C 3883	Blank.	Sol	ug/Kg													

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

TDD Number F3-B306-17

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name Miller Chemical & Fertilizer

Date of Sample June 22 1983

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: Aluminum	Barium	Beryllium	Boron	Chromium	Cobalt	Copper	Iron	Manganese	Nickel	Vanadium	Zinc	Arsenic	Remarks
MC 1249	Sediment upstream	Sol	mg/Kg	3710	5.0	0.25	5.0	31.5	5.0	5.0	22,000	193	54	20	27.5	6.0	
MC 1250	Sediment mid stream	Sol	mg/Kg	5840	75.0	0.50		29.5	7.5	5.0	7940	174	18	10	18	3.0	
MC 1251	Sediment upstream of confluence	Sol	mg/Kg	2560	30.0	0.25		11.0	5.0	12.5	6360	188	22		52.5	2.0	
MC 1252	Sediment downstream of confluence	Sol	mg/Kg	2050	10.0			18.5	12.5	15.0	10,400	270	22	30	36	30	
MC 1253	Blank	Sol	mg/Kg														

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

[illegible] of quantifiable qualitative significance based upon quality assurance review of data.

TDD Number F3-8306-17

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name Miller Chemical & Fertilizer

Date of Sample June 22, 1983

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: Cadmium	Lead	Selenium												Remarks
MC 1249	Sediment UPSTREAM	Sol	Mg/Kg	.05	45													
MC 1250	Sediment MID-STREAM	Sol	Mg/Kg		20	0.1												
MC 1251	Sediment upstream of confluence	Sol	Mg/Kg	0.2	60													
MC 1252	Sediment downstream of confluence	Sol	Mg/Kg	0.15	150													
MC 1253	Blank	Sol	Mg/Kg															

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

3.2 Quality Assurance Review

3.2.1 Organic Data: Lab Case 1855

3.2.1.1 Introduction

The findings offered in this report are based upon a general review of sample data, blank analysis results, surrogate spike results, matrix spike results, duplicate analysis and evaluation of GC confirmations.

3.2.1.2 Qualifiers

It is recommended that this data package be utilized only with the following qualifier statements:

- All positive results for methylene chloride, fluorotrichloromethane and di-n-octyl phthalate may be questionable.
- The results for bis(2-ethylhexyl) phthalate in sample C3881 may be questionable.
- The positive results for 4,4'-DDT, 4,4'-DDE and 4,4'-DDD in sample C3882 may be questionable.
- The detection limit for some acid fraction compounds in sample C3879 may be higher than reported.
- The actual detection limits of pentachlorophenol and 2,4-dinitrotoluene in sample C3882 may be significantly higher than reported.
- Per EPA request, tentatively identified compounds which were reported by the laboratory are not included in this report.

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3.2.1.3 Findings

- Blank analysis revealed the presence of methylene chloride, fluorotrichloromethane and bis(2-ethylhexyl) phthalate at sufficient levels to question the aforementioned sample results.

- The aforementioned result for di-n-octyl phthalate was questioned because this compound is a common laboratory contaminant and was detected at a level less than detection limits.

- 4,4'-DDT, 4,4'-DDD and 4,4'-DDE results may be artifacts of random chromatographic interferences because these compounds were identified from the retention times of their single peak responses on dual GC columns.

- Zero recovery was reported for one acid fraction surrogate compound in sample C3879.

- Zero or very low recoveries were reported for pentachlorophenol and 2,4-dinitrotoluene in the matrix spike of sample C3882.

- Tentatively identified compounds were examined only for possible target compound indentifications.

3.2.1.4 Summary

The attached Quality Assurance Review has identified blank contamination, inadequate pesticide confirmations and low surrogate and matrix spike recoveries as the principal areas of concern. Please see the accompanying support documentation appendix to this report for specifics on this Quality Assurance Review.

Report prepared by Rock J. Vitale Rock J. Vitale Date: April 26, 1984

Report prepared by Russell J. Sloboda Russell J. Sloboda Date: April 26, 1984

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3.2.2 Inorganic Data: Lab Case 1855

3.2.2.1 Introduction

The findings offered in this report are based upon a general review of sample data, blank analysis results, matrix spike results, duplicate analysis results, calibration verification and interference quality control.

3.2.2.2 Qualifiers

It is recommended that this data package be utilized only with the following qualifier statements:

- The actual results for vanadium in sample MC1252 may be slightly higher than reported.
- The reported levels of nickel and lead in sample MC1252 may not reflect the average concentration of these constituents due to sample inhomogeneity.

3.2.2.3 Findings

- Low matrix spike recoveries were reported for vanadium in sample MC1252.
- Duplicate analysis revealed high variability for nickel and lead in sample MC1252.

3.2.2.4 Summary

The attached Quality Assurance Review has identified matrix spike recoveries as the primary area of concern. Please see the accompanying Support Documentation Appendix to this report for specifics on this Quality Assurance Review.

Report prepared by Rock J. Vitale Rock J. Vitale Date: April 27, 1984

SECTION 4

4.0 TOXICOLOGICAL EVALUATION

4.1 Summary

Four sediment samples taken on and proximate to the Miller Chemical site revealed little to warrant concern. Low levels of polynuclear aromatic hydrocarbons, the pesticide toxaphene, and the plasticizer bis(2-ethylhexyl)phthalate were reported in isolated sediment samples. Trace levels of DDT and degradation products DDD and DDE were reported only in the downstream tributary sediment sample but were determined to be questionable following Quality Assurance Review. The reported contaminant concentrations should pose no imminent or substantial threat via expected exposure routes.

4.2 Support Data

Measurable quantities of many polynuclear aromatic hydrocarbons (PAH) were reported in the sediment sample taken from the Scott Creek tributary upstream of the confluence with the drainage ditch (proximate to the railroad tracks).

Total reported PAH concentrations were about 48 mg/kg and included compounds such as fluoranthene (12 mg/kg), pyrene (12 mg/kg), and phenanthrene (4.5 mg/kg).

PAHs are derivitives of coal tar and crude petroleum and are commonly found in creosote. PAH residues are not unexpected in the vicinity of railroad tracks as railroad ties are commonly treated with creosote as a preservative.

Some of the PAHs reported in this sediment sample such as benzo(a)anthracene (4.3 mg/kg), benzo(a)pyrene (1.8 mg/kg), benzo(b)fluoranthene (3.5 mg/kg), and indeno(1,2,3-cd)pyrene (0.96 mg/kg) have elicited carcinogenic responses when dermally applied in pure form to laboratory animals. Risks of carcinogenicity that may result from dermal contact with the reported sediment PAH concentrations are probably very low in this case as PAHs adsorb to suspended particulates and sediments, thus reducing concentrations available for absorption should direct contact occur. More acute toxic effects such as irritation or photosensitzation, associated with direct contact with pure PAHs, also would not be expected at the reported concentrations.

While the current status of water overlying the sampled sediments with respect to possible PAH contamination is not currently known, it is not anticipated that surface water would provide a conduit for PAH contamination. Most compounds of this class are not significantly soluble in water (solubility less than 1 mg/l) and those PAHs in solution in surface water are subject to photolysis.

Trace levels of the persistent and potentially carcinogenic insecticide DDT and related degradation products DDD and DDE were reported only in the tributary sediment sample taken downstream of the confluence with the drainage ditch. Reported concentrations ranged from 2.87 ug/kg (DDE) to 13.0 ug/kg (DDT). Note that Quality Assurance Review has determined that the presence of DDT, DDD, and DDE in these samples may be questionable. If determined to be real, the low concentrations of these parameters reported in the downstream sediment should pose no imminent or substantial threat to human health or the environment via likely routes of exposure.

A measurable concentration of the organochlorine insecticide toxaphene (479 ug/kg) was reported in the drainage ditch sediment sample taken upstream of the Miller site.

Toxaphene is a contact insecticide that has replaced many agricultural uses of DDT, and consequently, has become the most heavily used insecticide in the U.S. at present. Toxaphene is actually a chlorinated camphene and bornane mixture containing 67 to 69 percent chlorine and at least 170 different compounds. Components of the toxaphene mixture have different toxicities and degrade at different rates. The extremely high toxicity of some toxaphene components such as 8-octachlorobornane (oral LD 50 in mice is 3.3 mg/kg) will greatly influence the toxicity of the mixture to both target and non-target species. In contrast, DDT has an oral LD 50 in mice of 135 ug/kg.

Technical grade toxaphene has been determined to induce liver cancer in laboratory animals in bioassay studies. Potential carcinogenic risks arising from direct contact with the toxaphene contaminated sediment are expected to be very low in this case as toxaphene sequesters in sediments and does not readily desorb. No acute non-carcinogenic effects would be expected to result from the reported toxaphene concentration.

Components of the toxaphene mixture would be expected to degrade at different rates and the mixture is generally less persistent in the environment than other organochlorine pesticides (such as DDT). Toxaphene can be acutely toxic to freshwater aquatic life; the recommended Ambient Water Quality Criterion is 0.013 ug/l. The current condition of water overlying the toxaphene-containing sediment is not known, although sediments with measurable toxaphene concentrations are generally associated with very much lower toxaphene concentrations in overlying water. It is important to note that no other sediment samples revealed the presence of toxaphene above analytical detection limits.

The plasticizer, bis(2-ethylhexyl)phthalate was reported in the tributary sediment downstream of the drainage ditch confluence at a concentration of 12,000 ug/kg. Phthalates are ubiquitous environmental contaminants and the general population is exposed to them by a variety of routes. Although bis(2-ethylhexyl)phthalate has been determined to be weakly carcinogenic in bioassay studies, the reported sediment concentration probably poses little threat as phthalates sequester in soils, do not volatilize significantly, and are degraded by mixed microbial systems under aerobic conditions.

No other organic priority pollutants were reported at levels above detection limits and no non-target contaminants were reported at concentrations that warrant concern in sediment samples.

Inorganic analysis of the four sediments revealed the presence of heavy metals within normal ranges generally reported for non-polluted soils. It is interesting that reported concentrations of lead in the tributary sediment sample taken downstream of the confluence with the drainage ditch (150 mg/kg) exceed the concentration in the upstream drainage ditch sediment sample (45 mg/kg) by a factor of about 5.

Arsenic was reported at a high normal level, 30 mg/kg, in the downstream tributary sediment sample. (Arsenic concentrations in normal soil range from 1 to 17 mg/kg.) Note that this reported concentration exceeds that reported in the upstream tributary (2 mg/kg) and drainage ditch (6 mg/kg) sediment samples by factors of 15 and 5. It may be noted here that Miller Chemical once manufactured an arsenic-based herbicide ("Kill All"). Additional sampling would be required to determine whether the concentrations of arsenic and lead reported in the downstream sediments are site-related.

Arsenic and lead concentrations reported in downstream sediments provide no information as to what, if any, concentrations of these toxic elements may be present in overlying water. It is possible that environmentally significant concentrations of arsenic and lead, both relatively mobile elements in the environment, may be present in the downstream portion of the tributary.

Condition of groundwater underlying the site cannot be ascertained from current information. The nearest resident is located approximately 1/4 mile from the site.

Elizabeth Quinn

Elizabeth Quinn, Toxicologist

Kenneth G. Symms

Kenneth G. Symms, Ph.D., Toxicologist

APPENDIX A

ORIGINAL
(Red)

1. COST CENTER:	REM/FIT ZONE CONTRACT TECHNICAL DIRECTIVE DOCUMENT (TDD)	2. NO.:
ACCOUNT NO.:		F3-8306-17

3. PRIORITY:	4. ESTIMATE OF TECHNICAL HOURS:	5. EPA SITE ID:	6. COMPLETION DATE:	7. REFERENCE INFO.:
[X] HIGH [ ] MEDIUM [ ] LOW	225		Reports due 2 months after sample results received	[X] YES [ ] NO [ ] ATTACHED [X] PICK UP EPA Meetings
	4A. ESTIMATE OF SUBCONTRACT COST:	5A. EPA SITE NAME:		
	$400	Miller Chemical & Fertilizer Corp.		

8. GENERAL TASK DESCRIPTION:

Conduct PA/SI at subject facility.

9. SPECIFIC ELEMENTS:

1. Attend preliminary meeting with EPA personnel at subject facility.
2. Develop sampling plan in conjunction with EPA project leader.
3. Coordinate Labs analysis (P.P. & Dioxin).
4. Sample onsite for characterization of dioxin and priority pollutants.
5. Off-site sampling at discretion of EPA project leader.
6. Ship samples under chain of custody to appropriate labs.
7. Dioxin sampling etc. according to EPA/CDC protocol.
8. Submit formal report, PA & SI forms.
9. If sufficient data provide HRS under separate cover (30 additional hours).
10. Subcontract for proper disposal of contaminated clothing and materials from Site Inspection. (not to exceed 2 barrels/site).

10. INTERIM DEADLINES:

11. DESIRED REPORT FORM: FORMAL REPORT [ ] LETTER REPORT [ ] FORMAL BRIEFING [ ]

OTHER (SPECIFY): If time doesn't permit both dioxin and P.P. sampling, conduct dioxin only.

12. COMMENTS:

13. AUTHORIZING RPO:	14. DATE:
Linda J. Bonnegut (SIGNATURE)	6/9/83

15. RECEIVED BY:	16. DATE:
[X] ACCEPTED [ ] ACCEPTED WITH EXCEPTIONS [ ] REJECTED Donald Lenard (CONTRACTOR RPM SIGNATURE)	6/10/83

Sheet 1 White – FITL Copy
Sheet 2 Canary – DPO Copy
Sheet 3 Pink – Contracting Officer's Copy (Washington, D. C.)
Sheet 4 Goldenrod – Project Officer's Copy (Washington, D. C.)

ORIGINAL
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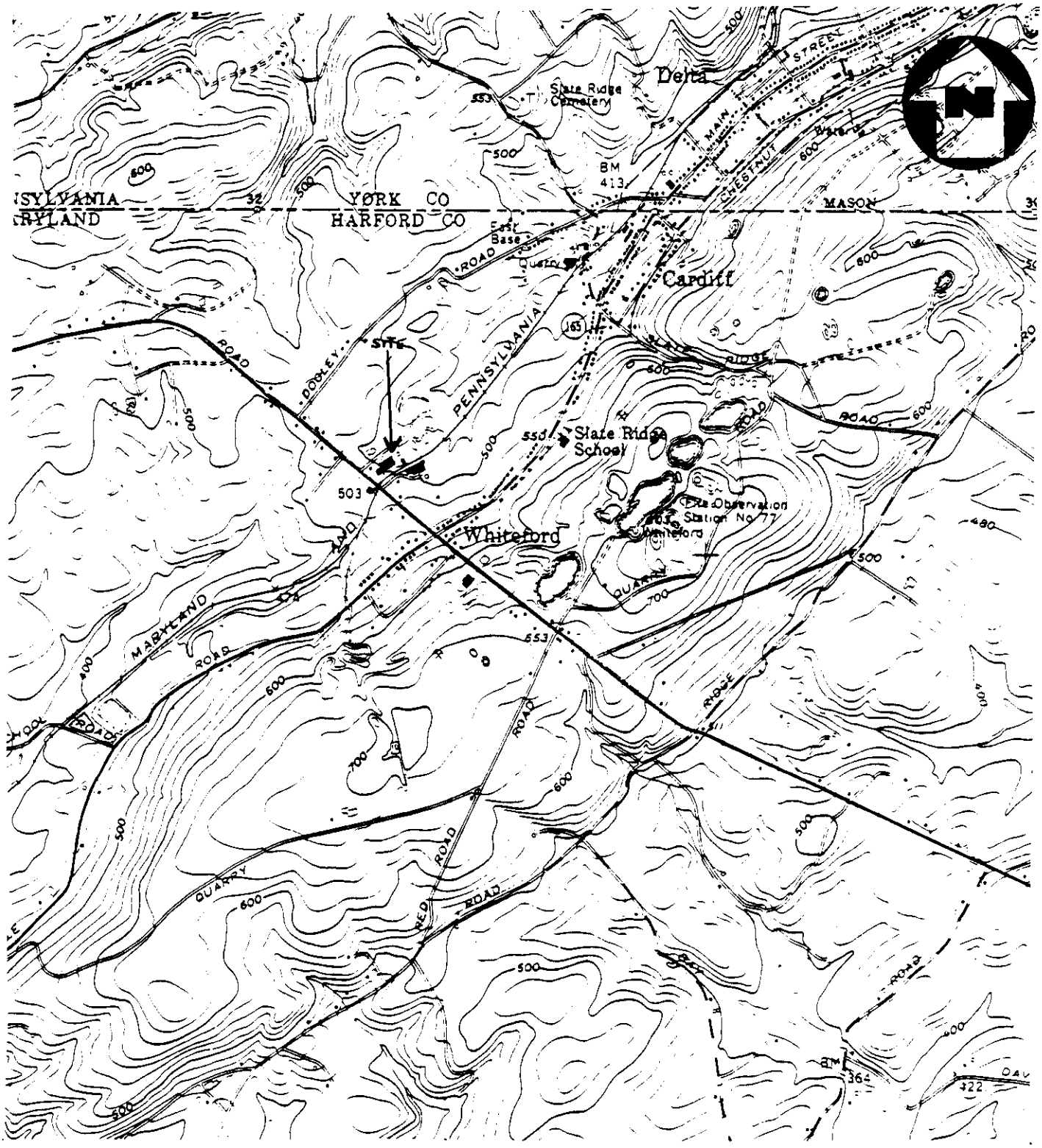
APPENDIX B

TDD NO.: F3-8306-17
EPA NO.: M-03
TITLE: Site Location Map
FIGURE NO.: 1

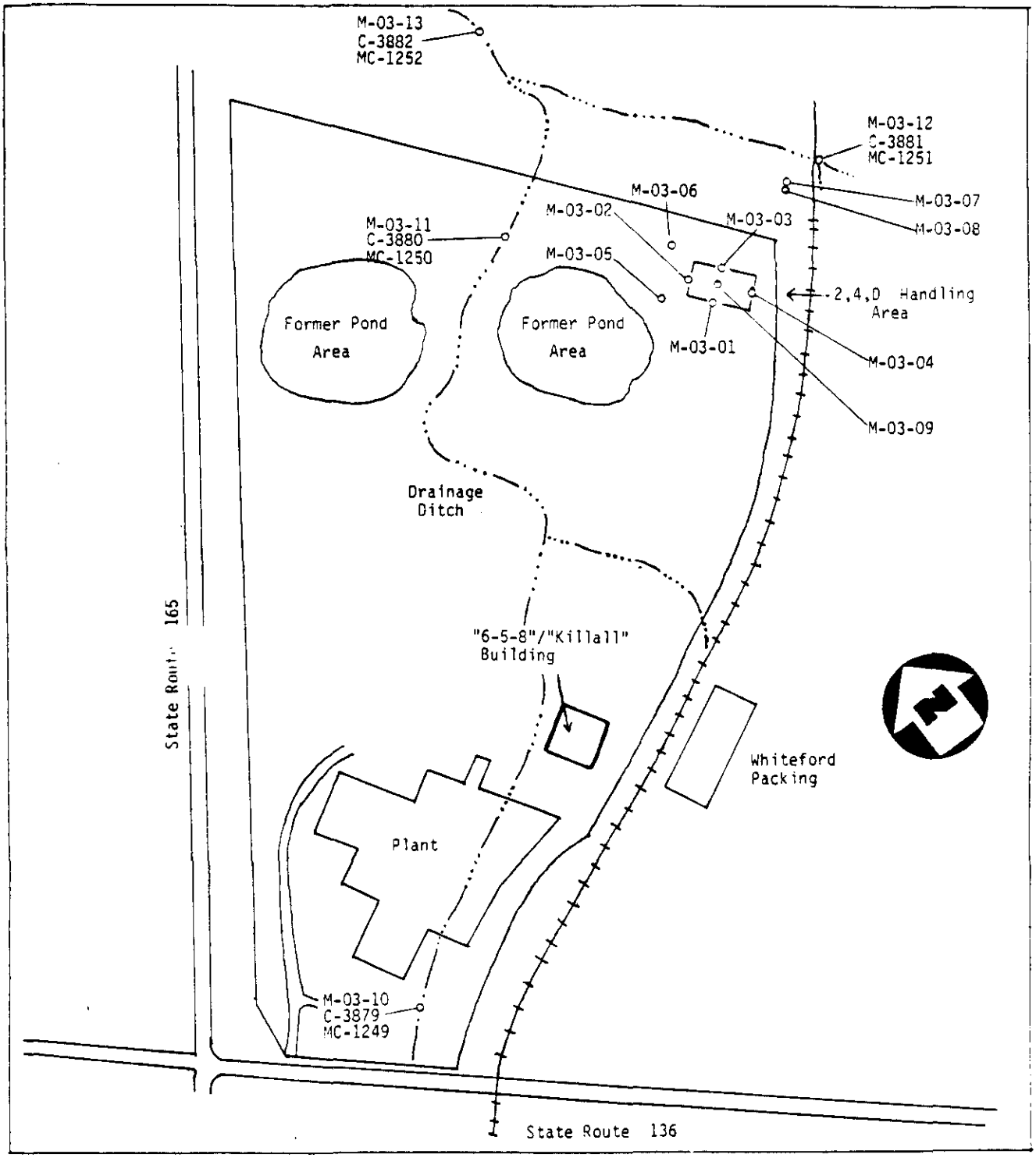


SOURCE: Delta MD Quadrangle

SCALE: 1:24,000

NUS CORPORATION
A Halliburton Company

TDD NO.: F3-8306-17
EPA NO.: M-03
TITLE: Sample Location Map
FIGURE NO.: 2



NUS CORPORATION
A Halliburton Company

SOURCE: Field Visit 6/22/83

SCALE: Not to Scale

APPENDIX C

PROJECT NAME: Miller Chemical & Fertilizer
TDD NO: F3-8306-17

EPA SITE NO.:
REGION: Reg III

QUALITY ASSURANCE REVIEW OF ORGANIC ANALYSIS LAB DATA PACKAGE

Case No.: 1855
Contract No.: Mead
Contract Laboratory: 68-01-6782
Applicable IFB No.:
Reviewer: Rock J Vitale
Review Date: 3/21/84

Applicable Sample No's.: C3879, C3880, C3881, C3882, C3883

The organic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction				
	VOLATILES	ACIDS	BASE/ NEUTRALS	PCB/ PEST.	TCDD
Acceptable					
Acceptable with exception(s)	✓1,	✓2,3	✓3,5,1	✓3,4	
Questionable					
Unacceptable					

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ◕ SURROGATE SPIKE RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- ● EVALUATION OF CONFIRMATIONS
- ● TARGET COMPOUND MATCHING QUALITY
- ● TENTATIVELY IDENTIFIED COMPOUNDS
- ◒ CHROMATOGRAPHIC SENSITIVITY CHECKS
- ◒ DFTPP AND BFB SPECTRUM TUNE RESULTS
- ◒ STANDARDS
- ◒ CALIBRATION CHECK STANDARDS
- ◒ INTERNAL STANDARDS PERFORMANCE

◒ - Spot Check Performed

Data review forms are attached for each of the review items indicated above.

Comments: #1 Please see blank analysis documentation
#2 Please see surrogate recovery documentation
#3 Please see matrix spike recovery documentation
#4 Please see Evaluation of GC Confirmations
#5 Please see duplicate analysis QC summary

DATA EVALUATION SCORE CATEGORIES

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

DATA COMPLETENESS	conc./ MATRIX	Lo/Soil	Lo/Soil	Lo/Soil	Lo/Soil	Lo/Soil	Lo/Soil	Lo/Soil	Lo/Soil	[redacted] ORIGINAL (3 Red)
FRACTION	TRAFFIC REPT.#	C3879	C3880	C3881	C3882	C3883	5037	6713	16830	5037
	LAB I.D. #	4933	4934	4935	4936	4937				
BNA:	RUN DATE/TIME	✓								
	TARGET CMPD. TAB.	✓								
	TARGET CMPD. D.L.	✓								
	TENT. I.D. CMPD. TAB.	✓								
	SURR. REC.	✓								
	GC SCREEN TAB.	✓								
	GC/MS CHROMATOGRAMS	✓								
	TARGET CMPD. QUAN. LIST	✓								
	TARGET CMPD. SPECTRA	✓								
	TENT. I.D. CMPD. Q.L.	✓								
	TENT. CMPD. LIB. SRCH.	✓								
	CHRO./SENS. CHECKS	✓								
	BFB/DFTPP TUNE DATA	✓								
	I.S. AREAS CHARTS	✓								
	I.S. REL. RESP. FORM	✓								
	RF and amts: CALIB. CHK.	✓								
	RF and amts: 3-Pt. Calib.	✓								
	Chromatograms: Calib. Chk.									
	Chromatograms: 3 Pt. Calib.	MS								
	Linearity: 3Pt. Calib.	✓								
	RF Comparison	✓								
	SAMPLE/FIELD BLANK					✓				
	METHOD/INSTR. BLANK						✓	✓	✓	
	LAB DUPLICATE				✓					
	FIELD DUP./REP.									
	MAT. SPK/M. STD.				✓					
PEST:	PEST. TAB.	✓								
	PEST. D.L. TAB.	✓								
	PEST. CHRO.	✓								
	PEST. STD. CHRO.	✓								
	PEST. STD. I.D.	✓								
	2nd COL. CONF.	✓								
	GC/MS CONF.									
	PEST. DUP.				✓					
	PEST. SPK.				✓					
	PEST. BLK.									✓
TCDD	TCDD TAB.									
	TCDD D.L.									
	TCDD CHRO./EICP									
	TCDD BLK.									

DATA COMPLETENESS

FRACTION: VOA

Conc./MATRIX	LO/SOIL	LO/SOIL	LO/SOIL	LO/SOIL	LO/SOIL	LO/WATER	LO/SOIL	LO/SOIL	LO/SOIL	ORIGINAL (Rvd)
TRAFFIC REPT.#	C3877	C3880	C3881	C3882	C3883	723	725			
LAB I.D. #	4933	4934	4935	4936	4937	C11	C11	5628	4938	
RUN DATE/TIME	✓								✓	
TARGET CMPD. TAB.	✓								✓	
TARGET CMPD. D.L.	✓								✓	
TENT. I.D. CMPD. TAB.	✓								✓	
SURR. REC.	✓								✓	
GC SCREEN TAB.	✓									
GC/MS CHROMATOGRAMS	✓								✓	
TARGET CMPD QUAN. LIST	✓								✓	
TARGET CMPD. SPECTRA	✓								✓	
TENT. I.D. CMPD. Q.L.	✓								✓	
TENT. CMPD. LIB. SRCH.	✓								✓	
CHRO./SENS. CHECKS	✓								✓	
BFB/DFTPP TUNE DATA	✓								✓	
I.S. AREAS CHARTS	✓								✓	
I.S. REL. RESP. FORM	✓								✓	
RF and amts: CALIB. CHK.	✓								✓	
RF and amts: 3-Pt. Calib.	✓								✓	
Chromatograms: Calib. Chk.									✓	
Chromatograms: 3 Pt. Calib.	NS								✓	
Linearity: 3Pt. Calib.	✓								✓	
RF Comparison	✓								✓	
SAMPLE/FIELD BLANK				✓						
METHOD/INSTR. BLANK						✓	✓	✓	✓	
LAB DUPLICATE	✓									
FIELD DUP./REP.										
MAT. SPK/M. STD.	✓									

COMMENTS:

KEY TO DATA COMPLETENESS FORM

ORIGINAL (red)

Abbreviation Used on Form	Description of Checklist Item
CONC./MATRIX	CONCentration category submited in analysis request (Low, med, hi); and matrix (Sd, a
FRACTION	Fill in acid, base/neutral, acid/base/neutral, or Volatiles analysis
RUN DATE/TIME	Instrument run date (to be used for correlating calibration)
TARGET CMPD. TAB.	Tabulated results for target compounds
TARGET CMPD. D.L.	Detection limits for target compounds (Actual/Level indicated by scree
TENT. I.D. CMPD. TAB.	Tabulated results for tentatively identified compounds
SURR. REC.	Surrogate recoveries results
GC SCREEN TAB.	Tabulated GC screen results indicating required level of followup
GC/MS CHROMATOGRAMS	Chromatograms of GC/MS analysis runs
TARGET CMPD. QUAN. LIST	Target compounds quantitation list, showing areas, ret. times
TARGET CMPD. SPECTRA	Enhanced and unenhanced spectra of target compound hits
TENT. I.D. CMPD. Q.L.	Quantitation list for tentatively identified compounds.
TENT. CMPD. LIB. SRCH.	Spectra and library match spectra of tentatively identified compounds
CHRO./SENS. CHECKS	EICP's and R.R.F.'s for chromatographic sensitivity checks
FB/DFTPP TUNE DATA	Spectra, intensity lists, and criteria comparison forms for BFB, DFTPP
I.S. AREAS CHARTS	Internal standards area control charts and description of remedial action
I.S. REL. RESP. FORM	Internal standards relative response listings for each sample run.
RF and amts: CALIB. CHK	Tabulated response factors and amount injected for all cpds. in calibration check
RF and amts: 3-Pt. calib.	" " " " " " " " " " 3-point calibration
Chromatograms: Calib. chk.	Chromatograms for calibration check standard
Chromatograms: 3Pt. Calib.	Chromatograms for 3-point multilevel calibration standards
Linearity: 3Pt. Calib.	Tabulated correlation coefficient or relative standard deviation for calib.
RF comparison	Tabulated comparison of calibration Response Factor with check standa
SAMPLE/FIELD BLANK	Equipment rinse or reagent water blank shipped with samples from fiel
METHOD/INSTR. BLANK	Method or instrument blank which is prepared at lab
LAB DUPLICATE	Sample which was split by lab for duplicate analysis
FIELD DUP./REP.	Sample which was split or collected twice in the field
MAT. SPK/M. STD.	Matrix spike or method standard (blind, ordered by lab.)
ST. TAB.	Tabulated results for pesticides
PEST. D.L. TAB.	Tabulated detection limits for pesticides
PEST. CHRO.	Chromatograms for pesticide screening
2nd COL. CONF.	Confirmation of pesticide results by using a second GC column and temperatu
GC/MS CONF.	Confirmation of pesticide results by GC/MS analysis
PEST. DUP., SPK., BLK.	Pesticide duplicate, spike, and blank
PEST. STD. CHRO.	Chromatogram of pesticide standard
PEST. STD. I.D.	Pesticide standard identification form
TCDD	2,3,7,8-tetrachlorodibenzodioxin
TCDD TAB., D.L., EICP, BLK.	TCDD tabulated results, detection limits, extracted ion current profile, blan

KEY TO SYMBOLS USED IN DATA COMPLETENESS TABLE

SYMBOL	MEANING
✓	Data item present
NA	Data item not applicable or not required
P	Data item within established control limits
F	Data item outside established control limits
MS	Missing item
I	Incomplete data item
NC	Data item not clearly explained (units of conc., e
✳ or [number]	See footnote
xx/xx/xx xx:xx	Date/time of run (calibration, etc.)

Run Chronicles

VOA				BNA				PEST			
#	S/N	Date	Time	#	S/N	Date	Time	#	S/N	Date	Time
3881		7/23	7:17	—		8/5	2:50	7/14	11:33	7/29	1:23
3930		7/25	2:45			7/26	16:39	7/13	23		
3931		7/25	3:31			7/26	17:38	7/14	12 56	29	
3932		7/25	4:37			8/8	9: 1	7/14	3:16	7/29	3:43
3933		7/25	5:20			8/4	23:34	7/14	3:51		
STD		7/23	3:56	STD		7/26	12:21	STD - TOX		7/4 13:27	7/28 - 23:11
		7/25	1:56			8/5	1:42	STD			
						8/4	17:38				
						8/18	2:58	SPIL	7/14	15:02	7/23:043
SPK		7/25	6:04	SPK		7/27	3:01		7/13		
SPK2			6:46	SPK		"	3:51				

BLANK ANALYSIS RESULTS FOR TARGET COMPOUNDS

FRACTION	TYPE/CONC/MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION LIMIT)
VOA	[illegible]/low/soil	C3803	NUS	Fluorotrichloromethane (0.2 ug/kg / 5 ug/kg) #1 Methylene Chloride (73 ug/kg / 5 ug/kg) #1 Toluene (2.3 ug/kg / 5 ug/kg) #1 → #3
BNA	field/low/soil	C3803	NUS	Bis(2-ethylhexyl)Phthalate (3[illegible] ug/kg / 400 ug/kg) #2 → #3
Pest	field/low/soil	C3803	NUS	ND
VOA	lab/low/soil	BC8[illegible]725 C11	Mead	Methylene Chloride (1.3 ug/kg / 5 ug/kg) #2 Toluene (.20 ug/kg / 5 ug/kg) #2 → #3
VOA	lab/low/soil	BC8[illegible]725 C11	Mead	Methylene Chloride (.70 ug/kg / 5 ug/kg) #2 Fluorotrichloromethane (.03 ug/kg / 5 ug/kg) #2 Toluene (.12 ug/kg / 5 ug/kg) #2
VOA	lab/low/soil	5828	Mead	Methylene Chloride (2.2 ug/kg / 5 ug/kg) #1 Fluorotrichloromethane (.019 ug/kg / 5 ug/kg) #2 Toluene (.5 ug/kg / 5 ug/kg) #2
BNA	lab/low/soil	5007	Mead #4	Benzo(A)Anthracene (52.1 ug/kg / 400 ug/kg) #2 Benzo(A)Pyrene (65.2 ug/kg / 800 ug/kg) #2 Benzo(B)Fluoranthene (1[illegible]9.[illegible] ug/kg / 800 ug/kg) #2 Benzo(K)Fluoranthene (99.3 ug/kg / 800 ug/kg) #2
				Anthracene (8.2 ug/kg / 400 ug/kg) #2 Phenanthrene (13 ug/kg / 400 ug/kg) #2 Fluoranthene (24.8 ug/kg / 400 ug/kg) #2 Bis(2-ethylhexyl)Phthalate (99.3 ug/kg / 400 ug/kg) #2
				Di-n-octyl Phthalate (18.2 ug/kg / 400 ug/kg) #2 Chrysene (72 ug/kg / 400 ug/kg) #2 Pyrene (49.7 ug/kg / 400 ug/kg) #2 → #3

ORIGINAL (Red)

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN THE SAMPLE ANALYTICAL DATA SUMMARY. TENTATIVELY IDENTIFIED COMPOUNDS IN BLANKS ARE LISTED ON A SEPARATE FOR

COMMENTS:

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM QUANTITATION LIST, DIAGNOSTICS, CHROMATIGRAM AND/OR SPECTRA.

#3 Many more blank contaminants but review is only addressing what was reported in sample results

#4 Instrument blank run after a standard therefore these values are NOT used to rule out the presence of these compound in samples.

BLANK ANALYSIS RESULTS FOR TARGET COMPOUNDS

FRACTION	TYPE	CONC	MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION LIMIT
BNA	lab	low	soil	6713	mead	Pyrene (25.5 ug/kg / 402 ug/kg) #2 Bis(2-ethylhexyl)phthalate (22.3 ug/kg / 402 ug/kg) # Chrysene (21.9 ug/kg / 402 ug/kg) #2 → #3
BNA	lab	low	soil	6830	mead	Phenanthrene (51.1 ug/kg / 402 ug/kg) #2 Fluoranthene (54.4 ug/kg / 402 ug/kg) #2 Pyrene (57.9 ug/kg / 402 ug/kg) #2 Bis(2-ethylhexyl)Phthalate (101 ug/kg / 402 ug/kg) #2
Pest	lab	low	soil	5087	mead	N.D ORIGINAL (1)
VOA	lab	low	soil	4935	mead	Methylene Chloride (4.0 ug/kg / 5 ug/kg) #1 Toluene (12 ug/kg / 5 ug/kg) #1 → #3 (#1)

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN SAMPLE ANALYTICAL DATA SUMMARY. TENTATIVELY IDENTIFIED COMPOUNDS IN BLANKS ARE LISTED ON A SEPARATE

COMMENTS:

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM QUANTITATION LIST, DIAGNOSTICS, CHROMATIGRAM AND/OR SPECTRA.

#6 Many more blank contaminants but reviewer only addresses what is reported in sample

SOIL SURROGATE PERCENT RECOVERY SUMMARY

CASE NO. 1855
LOW LEVEL 1
WATER
QC REPORT NO.

CONTRACTOR [illegible] CompuChem
MED. LEVEL
SOIL/SED. 1

CONTRACT NO. 68-01-6162
HIGH LEVEL
OTHER (Specify)

7/27

Case 1855

							[---Volatile---		]	[---Semi-Volatile---						]	[Pesticide]	[Dioxin]
SURR. I.D.	EXT. DATE	EXT. I.D.	DATE ANA.	ANAL. I.D.	CC #	SMO Traffic No.	(#233) D_8 Toluene (81-120)	(#247) BFB (NE)	(#258) D_4-1,2 Dichloro Ethane (NE)	(#447) D_5 Nitro Benzene (19-120)	(#448) 2-Fluoro Biphenyl (17-120)	(#471) D_{10} Pyrene (NE)	(#496) D_{14} p-Ter Phenyl (NE)	(#612) D_5 Phenol (10-100)	(#619) 2-Fluoro Phenol (26-120)	(#628) 2,4,6-Tribromo Phenol (NE)	(#738) Dibutyl Chlorendate (NE)	(#466) 1,2,3,4 TCDD (11-130)
383	7-20-83	729	7-23-83	633	4933	C3879	100	100	85									
382	8/2		8-5	602						47	76	81	70	23	20*	*0		
368	7-7-83		7/29/83	679 597													43	
383	7-20-83	729	7-25-83	714	4934	C3880	110	99	85									
382	7-5-83		7-26-83	659						62	60	69	67	44	60	38		
368	7-7-83		7-13-83	679													30	
383	7-20-83	729	7-25-83	714	4935	C3881	86	97	81									
382	7-5-83		7-26-83	659						72	120	130	100	63	66	42		
368	7-7-83		7-27-83	679 597													33	
383	7-20-83	729	7-25-83	714	4936	C3882	110	110	89									
382	8-2		8-18	659						73	60	102	86	62	118	61		
368	7-7-83		7-29-83	679 597													23	
3																		
383	7-20-83	729	7-25-83	714	4937	C3883	100	100	84									
382	8-2		8-4	659						97	86	100	87	51	46	64		
368	7-7-83		7-14-83	679													14	

Volatiles: 0 out of 5; outside of QC limits
Semivolatiles: 1 out of 20; outside of QC limits
Dioxin: ___ out of ___; outside of QC limits

*Asterisked values are outside of QC limits.
NE - Not established.

Comments:

(Reqd) ORIGINAL

Case 1855

MATRIX SPIKE DUPLICATE/RECOVERY

CASE NO. 1855 | CONTRACTOR MEAD COMPUCHEM | CONTRACT NO. 68-01-6702
LOW LEVEL XX | MED. LEVEL | HIGH LEVEL
WATER | SOIL/SED. XX | OTHER (Specify)
QC REPORT NO. 123.44 | | UNITS (Circle) ug/kg ug/l

FRACTION	COMPOUND	SMO # CONC	CONC. SPIKE ADDED	CONC. MS	% REC.	CONC. MSD	% REC.	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY	COMMENTS
VOA 4933 SMO # C3879	1,1-Dichloroethylene	ND	12.5	14	112	14	112	0	<15%	51-150	4933-37
	Trichloroethylene	ND	12.5	12	96	12	96	0	<15%	74-130	
	Chlorobenzene	ND	12.5	12	96	12	96	0	<15%	67-130	
4938 MS #C3879	Toluene	ND	12.5	12	96	12	96	0	<15%	58-130	
4939 MSD #C3879	Benzene	ND	12.5	13	104	13	104	0	<15%	56-130	
B/N 4936 SMO # C3882	1,2,4-Trichlorobenzene	ND	2000	2000	100	1200	60	50	<50%	38-110	4933-37
	Acenaphthene	ND	2000	2000	100	1300	65	42	<50%	57-120	
	2,4-Dinitrotoluene	ND	2000	540	27*	BDL	-	-	<50%	43-110	
4940 MS #C3882	Di-N-Butylphthalate	ND	2000	1900	95	1100	55	53*	<50%	13-110	
4941 MSD #C3882	Pyrene	ND	2000	2500	125	1400	70	56*	<50%	25-140	
	N-Nitrosodi-N-Propylamine	ND	8000	7500	94	4800	69	31	<50%	34-110	
	1,4-Dichlorobenzene	ND	2000	1900	95	1300	65	38	<50%	33-110	
ACID 4936 SMO # C3882	Pentachlorophenol	ND	2000	NF	-*	NF	-	-*	<40%	19-120	4933-37
	Phenol	ND	2000	1400	70	1600	80	13	<40%	23-80	
	2-Chlorophenol	ND	2000	1300	65	1600	80	35	<40%	33-110	
MS #C3882 MSD #C3882	P-Chloro-M-Cresol	ND	2000	1200	60	1200	60	0	<40%	32-110	
	4-Nitrophenol	ND	12000	3700	31	3600	30	3	<40%	15-90	
PEST 4936 SMO # C3882	Lindane	ND	80	2.55	3*	4.2	5	50*	<40%	87-110	4933-4937
	Heptachlor	ND	80	54.5	68	24	30	78*	<40%	43-120	* SEE QA NOTICE
	Aldrin	ND	80	55.7	70	26.0	33	72*	<40%	45-110	
4942 MS #C3882	Dieldrin	ND	80	128.0	160*	205	256	46*	<40%	56-120	
4943 MSD #C3882	Endrin	ND	80	87.9	110	134	168	42*	<40%	89-110	
	p,p-DDT	13.0	80	50.0	63*	-	-	-	<40%	82-100	

*Asterisked values are outside QC limits.

RPD: VOAs 0 out of 5; outside QC limits
B/N 2 out of 7; outside QC limits
ACID 1 out of 5; outside QC limits
PEST 4 out of 6; outside QC limits

RECOVERY: VOAs 0 out of 5; outside QC limits
B/N 1 out of 7; outside QC limits
ACID 1 out of 5; outside QC limits
PEST 3 out of 6; outside QC limits

*Date Limits Set 12/82
Revision Due 6/83

ORIGINAL

Evaluation of Confirmations by GC analyses

GC column #1 — column: SP 2250/2401 Packed; conditions: ; detector: Varian 3700 ECD; other: 175° 2ul injected. DATA FROM COLUMN NO. 1: ☒ Ret. or ☐ Rel. Ret. Times in:

GC column #2 — column: FSCC; conditions: 50→, 210-10, 250→; detector: HP 5880 ECD; other: 1ul injected. DATA FROM COLUMN NO. 2: ☒ Ret. or ☐ Rel. Ret. times in:

GC/MS DATA — column: ; conditions: ; detector: ; other: . DATA FROM GC/MS RUN(S): ☐ scan number ☐ Ret. or ☐ Rel. Ret. times in:

SAMPLE NO.	Compound	GC col. #1 Ret. times SAMPLE	GC col. #1 Ret. times STANDARD	GC col. #1 Relative Peak Area Ratios SAMPLE	GC col. #1 Relative Peak Area Ratios STANDARD	GC col. #2 Ret. times SAMPLE	GC col. #2 Ret. times STANDARD	GC col. #2 Relative Peak Area Ratios SAMPLE	GC col. #2 Relative Peak Area Ratios STANDARD	SPECTRUM MATCH? (Y/N)	Level high enough for all ions	WHICH EXTRAS	GC/MS times SAMPLE	GC/MS times STANDARD	GC/MS Relative Peak Area Ratios SAMPLE	GC/MS Relative Peak Area Ratios STANDARD	Reported type of confirmation (2C: GC/MS)	Reviewer Confident (Y/N)
C3879	Toxaphene	2.98	3.00	13479	26520	11.46	11.46	261942	121608									
		3.50	3.54	33083	51102	14.43	14.45	52416	13005									
		5.33	5.34	119,775	167,028	18.22	18.20	52786	230,029									
		8.09	8.06	107947	223,816	20.01	20.03	11,700	60700								2C (#1)	Y
		9.85	9.80	346,173	715417	22.49	22.48	105,800	103,400									
		12.27	12.20	24169	15404	22.78	22.72	12 083	147416									
		16.94	17.01	854 930	204 159	24.34	24.36	261,370	178,826									
C3882	4,4 DDT	9.45	9.44	462,183 (.682)	677,690	20.89	20.89	270,821 (.41)	666,917							#2	2C	N
	4,4 DDE	Not	Present			18.14	18.14	8461)	304,058							#2	1C	N
	4,4 DDD	7.82	7.80	318,825 (.66)	486,402	19.59	19.58	324,600 (.82)	391,900							#2	2C	N

Comments: #1 Ratios don't match too well but actual retention time comparison suggest very confident match
#2 [illegible]

PROJECT NAME: Miller Chemical + Fertilizer
TDD NO.: F3 8306-17
EPA NO.: N/a
REGION: EIT III

QUALITY ASSURANCE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

Case No.: 1855
Contract No.: 68 01-6661
Contract Laboratory: Versar
Applicable IFB No.: WA 82-A073
Reviewer: Rock J Vitale
Review Date: 3/25/54

Applicable Sample No's.:
MC1249, MC1250, MC1251, MC1252, MC1253

The inorganic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction			
	TASK I ICP or AA METALS	TASK II FURNACE AA METALS	TASK III COLD VAPOR AA MERCURY	TASK III CYANIDE
Acceptable			✓	✓
Acceptable with exception(s)	✓ #1, #2	✓ #1, #2		
Questionable				
Unacceptable				

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- ○ STANDARD ADDITIONS RESULTS
- ● INITIAL CALIBRATION VERIFICATION
- ● CONTINUING CALIBRATION VERIFICATION
- ● INTERFERENCE QC RESULTS
- ● DETECTION LIMITS RESULTS
- ● INSTRUMENT SENSITIVITY REPORTS

Data review forms are attached for each of the review items indicated above.

Comments: #1 Please see matrix spike documentation
#2 Please see Duplicate Analysis documentation.

DATA EVALUATION SCORE CATEGORIES

ORIGINAL
(Red)

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

INORGANIC DATA COMPLETENESS CHECKLIST

ORIGINAL (Red)

TRAFFIC REPORT #		MC1244	MC1250	MC1251	MC1252	MC1253								
MATRIX (SOL/AQ)		3585	3586	3587	3588	3589								
(LO, MED, HI) CONC.		LO/SOL	LO/SOL	LO/SOL	LO/SOL	LO/SOL								
FIELD QC	BLANK					✓								
	DUPLICATE				✓									
	SPIKE				✓									
TASK I: ICAP or AA Metals	Raw data	✓												
	TAB. results	✓												
	TAB. D.L.'s	✓												
	QA Form	✓												
	ICAP Interference QC	✓												
	Instr. Sens.	✓												
TASK II: Furnace AA Metals	Raw data	✓												
	TAB. results	✓												
	TAB. D.L.'s	✓												
	QA Form	✓												
	Instr. Sens.	✓												
TASK II: Cold Vapor AA: Mercury	Raw data	✓												
	TAB. results	✓												
	TAB. D.L.'s	✓												
	QA Form	✓												
	Instr. Sens.	✓												
TASK III: Cyanide	Raw data	✓												
	TAB. results	✓												
	TAB. D.L.'s	✓												
	QA Form	✓												
	Instr. Sens.	N/A												
Other (Specify):	Raw data													
	TAB. results													
	TAB. D.L.'s													
	QA Form													
	Instr. Sens.													
Other (Specify):	Raw data													
	TAB. results													
	TAB. D.L.'s													
	QA Form													
	Instr. Sens.													

Comments:

Blank Analysis Results

The contaminants found in the blanks are listed below:

FRACTION	TYPE OF BLANK	SAMPLE NO.	SOURCE OF	CONTAMINANTS (concentration/DL)
All	Field	MC1253	NUS	N.D
All	Prep Blank 1	DB	Versar	Sn 2.2 mg/kg Al 15 mg/kg / 15 Fe 5 mg/kg / 5
All	Prep	DF	Versar	Fe 3 mg/kg / 5

COMMENTS: All values reported & corrected

MATRIX SPIKE RECOVERIES

Sample No.	MC1252	MC1251	MC1249			
Field Spike						
Lab Spike	✓	✓	✓			
Matrix	Soil	Soil	Soild			
Conc. Level	low	low	low			
Method Std.						
Fraction	Total Recoverable Hg	Hg	CN-			

All matrix spike recoveries were within the established control ranges specified in;
IFB WA82-A072, Exhibit E, Table 2. ✓ Yes ___ No

Exception(s):

Parameter	Accepted Range (%)	Actual % Rec.	Sample Number	Org. Result	Spike Added	Spike Result	Units
Mn	80 120	64%	MC1252	173	300	364	mg/kg
V	80 120	48%	MC1252	14	25	26	mg/kg
Cd	75-125	68%	MC1252	0.10	0.50	0.44	mg/kg
CN	75-125	82%	MC1252	1.1	5.0	4.2	mg/kg

Comments: Actual levels of Cd, V, and Mn in MC1252 may be slightly lower than reported.

Duplicate Analysis Results

The applicable duplicate pairs are:

sample no.	MC1252	MC1252	MC 1249			
Field duplicate						
Lab duplicate	✓	✓	✓			
sample level	Low	Low	Low			
sample matrix	Soil	Soil	Soil			
Fraction	I + II [illegible]	Hg	Cl⁻			

The relative percent difference (RPD) for each parameter group was evaluated. The duplicate analysis RPD acceptance criteria should be:

Fraction	maximum acceptable Percent Difference
All	40% solids

The RPD's exceeding the maximum acceptable percent difference were: 40%

Fraction	Compound	Actual RPD	Sample	Comparison conc.	Comparison conc.
TASK I	Barium	42	MC1252	10.5	16.0
↓	Cobalt	[illegible]	MC1252	10	20
↓	Manganese	62	MC1252	173	327
↓	Nickel	105	MC1252	22.5	75
TASK II	Lead	72.7	MC1252	150	70

Comments: The [illegible] in MC1252 for ~~Ba, Co, Mn~~ (not significantly beyond normal variability) Ni, Pb may not reflect the average concentrations of these constituents.

Initial Calibration Verification and Continuing Calibration Verification

Documentation indicates calibrations were performed and checked every ten samples: Yes ✓ No __

Exceptions: ____

Calibrations and verifications were all within the control limits specified in IFB WA82-A072: Yes ✓ No __

Outliers are listed below:

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments

Interference QC Results

Documentation indicates interference QC samples were run before and after every ten samples: Yes ✓ No __

Exceptions: QC notice was reported for Ba, B, & Mn in the ICP interference [illegible] [illegible] values were not used to question results since this [illegible] has been documented before.

Interference QC results were all within the control limits specified in IFB [illegible] A072: Yes ✓ No __

Exceptions: See QC notice

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments

Versar inc.

ATTACHMENT I

DATE: October 8, 1982

SUBJ: "True" Concentrations for EPA ICP Interferrence Check Samples (WP481, WP581, and WP681)

Versar's observed concentration for Ba, B, and Mn in EPA ICP interference check samples (WP481, WP581, and WP681) differ substantially from the "true" values reported by EPA. Detailed analysis of the problem at Versar confirmed that ICP spectral corrections have been correctly applied and that ICP calibration materials are verifiable against other EPA Q.A. vials. This investigation suggests that the interference vial "true" values are in error. Attempts to confirm this problem with EPA have been inconslusive.

Ted Martin of EMSL, EPA has not analyzed the suspect vial series and was therefore unable to comment on our problems. Mr. Martin was, however, able to confirm a similar problem noted in the EPA ICP calibration check vial (WP481 concentration 1). This problem has also been noted in Versar's ICP lab. Ray Wesselman (Q.A. Branch, U.S. EPA, EMSL, Cinn. OH) Project Manager for the preparation of this interference vial series was also unable to comment on our investigation. Mr. Wesselman will be looking into the problem and will contact Versar with any information as it becomes available. A complete report of Versar's investigation into this problem will be provided to Mr. George Brillis of the U.S. EPA, EMSL, Las Vegas, NV, Q.A. Division.

Detection Limits Results

Detection limits were reported for all samples analyzed: Yes ✓ No ___

Exceptions: _____

Detection limits were less than or equal to the required detection limits specified in IFB WR82 A.72. Yes ✓ No ___

Exceptions: _____

Instrument Sensitivity Reports

Instrument sensitivity reports were documented for all parameters:

Yes ✓ No ___

Comments: All analytes were documented.

Other Remarks Concerning this Case:

There are currently no established control ranges for ICP interference check standards. However, although not a contractual requirement, 85% - 115% is used here as a tentative guideline for evaluation. Outliers of this tentative control range, if any, are tabulated on the bottom of the preceeding page.